

**IN THE DRAWINGS**

Applicants acknowledge and appreciate that the Examiner has accepted the drawings filed on May 20, 2005.

**REMARKS**

Claims 1-25 remain pending in this application. Claims 1 and 24 have been amended.

Applicants acknowledge that the rejections in the previous Office Action (dated February 16, 2005) have been withdrawn. Examiner's new grounds of rejection relating to the present office action is addressed below.

The Examiner rejected claims 1-25 under 35 U.S.C. § 103(a), as being unpatentable over US Patent 6,507,606 (*Shenoi*), in view of U.S. Patent 6,870,888 (*Shapiro*). In light of the amendments and arguments provided herein, Applicant respectfully traverses this rejection.

Applicant respectfully asserts that *Shenoi*, in combination with *Shapiro*, does not teach, disclose, or suggest all of the elements of claim 1 of the present invention, as amended. There are several flaws in the rejections proposed by the Examiner. For example, the Examiner suggests that *Shenoi* discloses or makes obvious monitoring a signal and performing a gain/bandwidth control process based upon monitoring the signal. However, Applicant respectfully asserts that *Shenoi* does not disclose this subject matter. *Shenoi* merely discloses a bandpass filter that isolates a frequency band from 10 kHz to 44 kHz and amplifying the signal. See column 8, lines 3-5. *Shenoi* then discloses introducing a gain for compensation of attenuation caused by approximately 6,000 ft. of cable at 27 kHz. See column 8, lines 5-8. Therefore, *Shenoi* merely asserts filtering a signal and applying a predetermined gain to counteract an attenuation caused by a 6,000 ft. of cable at 27 kHz. *Shenoi* does not disclose or make obvious performing the gains/bandwidth control process called for by claim 1 of the present invention.

*Shenoi* discloses the asymmetrical system being used for providing greater data transmission. Although *Shenoi* discloses two circuits, each having different amplifications, *Shenoi* clearly does not disclose all of the elements of claim 1 as amended. For example, *Shenoi* clearly does not disclose determining a bandwidth requirement for a signal path associated with a portion of a signal for controlling a gain of the portion of the signal, as called for by claim 1 (as amended) of the present invention. Previously, the Examiner cited a passage in *Shenoi* disclosing the bandpass filter BPF that isolates the frequency bands from 10khz to 44khz to provide an amplification by amplifier AMP-U. See col. 8, lines 3-7. The Examiner also cited a gain that is used to address the attenuation of approximately 6000 feet of cable at 27khz. See col. 8, lines 5-8. The Examiner also pointed to the downstream signal being amplified by AMP-D after a highpass filter HPF separates the band above 60 khz. See col. 8, lines 9-11. However, these passages merely refer to circuits that address filtering of the signal to amplify a downstream signal and an upstream signal. *Shenoi* merely discloses amplification for addressing the attenuation of 6000 feet of cable and 27khz for the upstream signal and at 600khz for the downstream signal. Nowhere in *Shenoi* is it disclosed or suggested determining a bandwidth requirement of a signal path.

*Shenoi* does not disclose the subject matter of the gain of a portion of the signal being controlled based upon a determination of a bandwidth requirement of a signal path, as called for by claim 1 of the present invention. *Shenoi* simply does not disclose controlling the gain based upon determining of a bandwidth requirement. *Shenoi* merely discloses providing filter for specific ranges of frequencies for downstream and upstream amplification. *Shenoi* clearly does not determine any bandwidth requirements, as called for by claim 1 of the present invention. Therefore, for at least the reasons cited above, all of the elements of claim

1 are not taught, disclosed, or suggested by *Shenoi*. Additionally, *Shapiro* does not make up for the deficit of *Shenoi*.

The Examiner asserts that *Shapiro* performs control over the gain based on specific bandwidth requirements. However, Applicants respectfully assert that *Shapiro* does not perform a gain/bandwidth control, as called for by claim 1 of the present invention. *Shapiro* does not disclose or make obvious monitoring a signal and performing a gain/bandwidth control process based upon the signal, which includes determining a bandwidth requirement of a signal path. Applicant respectfully asserts that *Shapiro* is directed to reducing the number of symbol errors that result from individual channel errors by providing using symbol-oriented correction methodologies. See column 4, lines 8-23. However, *Shapiro* does not provide sufficient disclosure to make obvious, alone or in combination with *Shenoi*, all of the elements of the claims of the present invention.

*Shapiro* provides a table which includes communication channels listings and the respective number of bits to be loaded onto each channel listed in the table. See column 7, lines 55- column 8, line 1, Figure 3. The table also provides predetermined respective transmission gains to be used with the respective data bits via the respective channels. *Id.* In other words, *Shapiro* merely provides a disclosure of a table (see Figure 3 of *Shapiro*) that lists channel numbers, which provides a sequence in which the communication channels are to be loaded with predetermined number of bits from a serial input data bit stream 100. See column 7, lines 55-62. These channels are then associated with a list of number of bits that are transmitted on these channels and a predetermined gain that corresponds to the channel. However, there's no disclosure or in *Shapiro* that would make obvious the concept of

monitoring a signal and performing a gain/bandwidth control based upon monitoring of the signal, which includes the gain of at least a portion of the signal based upon determining a bandwidth requirement.

*Shapiro* does not disclose determining a bandwidth requirement. *Shapiro* merely discloses listing channels, the respective number of bits to be loaded onto the channels, and a predetermined gain for the channels. See Figure 3. However, *Shapiro* simply does not make obvious, alone or in combination with *Shenoi*, the subject matter of performing the gain/bandwidth control process based upon monitoring of the signal, which includes determining a bandwidth requirement of a signal path associated with a portion of the signal (as called for by claim 1 of the present invention). Simply providing a table with a listing of a sequence of number of bits to be transmitted on certain channels, as well as a corresponding gain, does not make obvious the gain/bandwidth control called for by claim 1 of the present invention. In other words, merely listing predetermined gains to be implemented to particular channels does not make obvious the concept of monitoring a signal and then performing a gain bandwidth control process, which includes determining a bandwidth requirement of a signal path associated with a portion of the signal, as called for by claim 1 of the present invention. Therefore, claim 1 of the present invention is not taught, disclosed or made obvious by *Shenoi*, *Shapiro*, or their combination.

Further, regarding claim 12, which calls for receiving a signal using a first circuit and separating the plurality of signal paths based upon a characteristic of the signal path and then applying a corresponding gain using a second circuit is not made obvious by *Shenoi*, *Shapiro*, or their combination. Neither *Shapiro*, *Shenoi*, nor their combination disclose or

make obvious any subject matter relating to applying a particular gain based upon separating a plurality of signal paths based upon a characteristic. As described above, *Shenoi* does not separate any signal paths based upon the characteristics of the signal path to apply a corresponding gain upon the signal path. *Shenoi* merely discloses a predetermined bandpass filter for filtering upstream and downstream signals. *Shenoi* clearly does not disclose separating the plurality of signal paths based upon a characteristic of the signal path to apply a corresponding gain, as called for by claim 12, as amended, of the present invention. As described above, *Shapiro* does not make up for this deficit. Therefore, for at least the reasons cited above, all of the elements of claim 12 are not taught, disclosed, or made obvious by *Shenoi*, *Shapiro*, or their combination.

As provided above, simply listing several channels and corresponding bits to be transmitted and pre-selected gains for the channels, does not disclose or make obvious applying a gain on the signal path based upon separating a plurality of signal paths based on a characteristic. The mere listing of the data that is to be transmitted to be loaded on to particular channels does not teach, disclose or suggest determining the bandwidth requirement of a signal path. Therefore, various elements of claims 1 and 12 are not taught, disclosed or suggested by *Shapiro*, *Shenoi*, or their combination.

*Shapiro* merely relates to bit allocation among carriers in a multi-carrier communication. *Shapiro* is directed to listing channels and the respective number of bits to be loaded onto the channels in a gain for each of the channels. In contrast, *Shenoi* is directed to the ADSL line communications and providing gain sufficient to provide communication over long subscriber loops. Applicant respectfully asserts that without improper hindsight

reasoning, those skilled in the art would not have combined *Shapiro* and *Shenoi* since the requisite motivation is not found in the prior art or known to those skilled in the art at the time of the invention of the present invention. Additionally, as described above, *arguendo*, even if those skilled in the art were to combine *Shapiro* and *Shenoi* at the time of the present invention, all of the elements would not be taught, disclosed or made obvious by *Shapiro*, *Shenoi* or their combination.

For at least the reasons cited above, those skilled in the art would not combine *Shapiro* and *Shenoi* to make obvious all of the elements of any of the claims of the present invention. For similar reasons, the system called for by claim 18, is also allowable since neither *Shenoi* nor *Shapiro* disclose, teach or make obvious the subject matter of applying appropriate gain upon a signal based upon separating at least one signal path based upon the characteristics of the signal path.

Further, claim 24 calls for an apparatus that calls for performing a gain/bandwidth control process based upon monitoring of a signal, which includes determining a bandwidth requirement of a signal path associated with a portion of the signal, which is not taught, disclosed or made obvious by *Shapiro*, *Shenoi* or their combination. Further, claim 25, which calls for separating a signal path in response to an approximate length of the signal path and the bandwidth requirement, and applying an appropriate gain factor, are not taught, disclosed or suggested by the mere application of gain of *Shenoi* and/or *Shapiro*, or made obvious by the mere table listing of the number of bits to be downloaded onto a channel, and a predetermined gain. Therefore, for at least the reasons cited above, claim 25 of the present invention is also allowable.

Further, Applicant respectfully asserts that those skilled in the art would not combine *Shapiro* and *Shenoi* in order to make obvious all of the elements of the claims of the present invention. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Third, there must be a reasonable expectation of success. *In re Vaack*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). As described above, *Shapiro* and *Shenoi*, alone or in combination, do not teach or disclose all of the elements of claims of the present invention. Further, the Examiner has not offered evidence or arguments as to any reasonable expectation of success by the combination of *Shapiro* and *Shenoi*. Additionally, the Examiner has not demonstrated sufficient motivation by those skilled in the art to combine *Shapiro* and *Shenoi*. Therefore, the Examiner has failed to establish a *prima facie* case of obviousness of all of the elements of the claims of the present invention. Accordingly, claims 1-25 of the present invention are allowable.

Independent claims 1, 12, 18, 24 and 25 are allowable for at least the reasons cited above. Additionally, dependent claims 2-11, 13-17, and 19-23, which respectively depend from independent claims 1, 12, and 18, are also allowable for at least the reasons cited above.

Reconsideration of the present application is respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Houston,

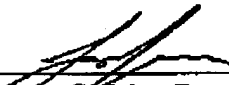


Texas telephone number (713) 934-4069 to discuss the steps necessary for placing the application in condition for allowance.

Respectfully submitted,

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